heating up the latter) lined with iron and. manganese oxide, which is introduced tentatively and heated to sintering. Thou further iron ore is introduced into the furnace in amounts which are dependent on the composition of tlio iron to ho purified, and heated until the material is bakod fast to the walls of the same, whereupon the iron in tho molten state is as rapidly as possible run in thereon. In tho American patents specification it says:

"When the charge has been run at once into the furnace, it remains generally almost quiet for about three to eight and even more minutes. This is the. first period of reaction in my process where phosphorus, sulphur, silicon and manganese are oxidised."

"This oxidation forms liquid products, vr/,.: phosphates and silicates of protoxide of iron and silicate of protoxide of manganese. Sulphur only, if present, is oxidised partly to gaseous sulphurous acid, but partly it combines with iron and manganese, as a liquid product, sulphide of iron or manganese. Therefore, the bath remains almost untroubled and only little froth and bubbles are formed ; but an noon as tho above substances have been oxidised (phosphorus and sulphur, for tho most part, silicon and manganese throughout, or at least except minimal traces) tho oxygen of the. oxides acts with all its power upon the carbon. Jt forms with tho carbon a gaseous product—carbonic oxide—causing thus a revolution in the whole bath. The molten mans commences to rise, and froth and foam are formed or bubbles thrown out, which burn upon the surface of the bath to carbonic acid with bluish llames. All these signs are very conspicuous, so that every intelligent workman may recognise tho moment for tapping. A short delay in tapping presents no Inconvenience. On the contrary, it gives the guarantee that almost all phosphorus ban boon removed, especially if tho pig iron treated contained some manganese."

The specification states that with pig irons containing about (H» to 2*5 per cent, of phosphorus, the consumption of ore, for repairs of lining is about (> pen* font, on the weight of the metal charge after each charge, and in addition about .12 to 24 per cent, for the production of chemical rouetionH, that !H